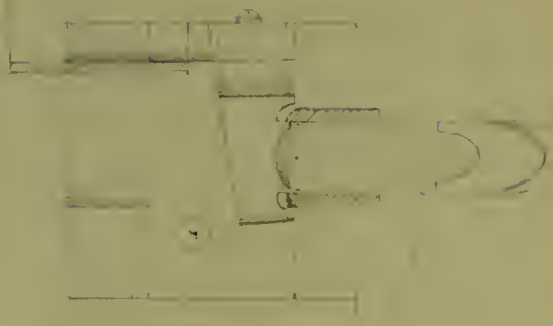
THE

NATIONAL PAINT CO.

OF

NEW JERSEY.



THE

National Paint Company,

OF

NEW JERSEY.

OFFICERS.

DIRECTORS.

HON. JAMES S. GREEN,	of Princeton, N. J.
ARCHER GIFFORD, Esq.,	" Newark, "
RICHARD JONES, Esq.,	" Hanover, "
JOSEPH R. LATOURETTE, Esq.,	" Jersey City, "
JOHN F. TRIPPE, Esq.,	" " " "
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CHARLES J. GILBERT, Esq.,	" " "
JAMES L. CURTIS, Esq.,.	" " "
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PRESIDENT.

SAMUEL T. JONES, New York.

SECRETARY.

CHARLES GILBERT, New York.

EXECUTIVE COMMITTEE.

SAMUEL T. JONES.
JAMES L. CURTIS.
CHARLES J. GILBERT.

NEW YORK:

JAMES D. TORREY, PRINTER, 18 SPRUCE STREET.

1855.

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NATIONAL PAINT COMPANY,

OF

NEW JERSEY.

The Charter of this Company was originally granted by the Legislature in 1841, under the title of the "New Jersey Zinc and Copper Mining and Manufacturing Company," which was changed by supplement on the fourth day of March, 1853, to that of the "National Paint Company," giving authority at the same time to increase the capital stock to $1,200,000, in shares of twelve and a half dollars each.

The original object of the Company, in 1841, was mainly to make metallic zinc from the mineral called the red oxide of zinc, of which it was believed an inexhaustible supply had been obtained in the vicinity of Franklin Furnace, in Sussex County, N. J., in lands adjoining those

since obtained by the New Jersey Zinc and the Passaic Zinc Companies, and also upon some valuable leases further up the valley of the Walkill, nearer to Sparta.

This Company being the first, and pioneer to the other Zinc Companies since established and obtaining ores from the same region, possessed itself of several highly favored localities, from whence ample supplies, both of zinc and Franklinite, can be obtained with great facility, and it may prove interesting to dwell a little upon its early history.

At that early period in the now important and increasing zinc industry of the United States, many experiments were tried and much money expended, to ascertain some practicable method of smelting this peculiar ore, but without any very decided success.

The art of making fire-clay retorts and muffles for the distillation of the metal, embracing a knowledge also of the best kinds of fire-clay, and of its subsequent manipulation, so as to insure the soundness of these vessels, in order to distil and retain the volatile metallic vapors under a white heat previous to their subsequent condensation, and at which high temperature it is necessary to maintain them for weeks and months together, involved a degree of knowledge and practice which did not exist in

this country at that time, and which could only be obtained at a great expenditure of time, money, and persevering investigation. The ore found at these mines is largely intermixed with iron and manganese, and differs widely from the blend, calamine, and sillicate of zinc exclusively worked in Europe, and it has not indeed been found in any other part of the world. It therefore required a treatment different and peculiar to itself, and which could only be determined by patient experiment and investigation.

After these difficult and preliminary points had been investigated and matured, another and as yet unforeseen difficulty had to be overcome. At the zinc works abroad, the fire-clay vessels of distillation are heated by contact of the *flame* only of wood or of bituminous coal, and it was believed by the foreign workmen at length obtained, that anthracite coal could not be made to answer. The high prices of wood and bituminous coal on the sea-board seemed therefore to oppose an absolute bar to success, so far as profit was concerned, and the experiments were near coming to a final issue upon this ground. The attention of the party having charge of the experiments was not however to be thus discouraged, and he devised a furnace for the use of anthracite coal, which, in opposition to the opinion of the foreign workmen, who declined taking the responsibility, he had constructed, and which,

without the flame so much insisted upon, proved to be eminently successful. Several tons of the metal were obtained of the greatest purity and of almost silvery whiteness, and nothing further was required than a multiplication of the number of furnaces and retorts, to obtain the metal to any required extent and at a moderate price.

At this period, however, which was in the summer of 1849, large supplies of zinc-metal were forced upon the market from abroad, and the price was thereby so much depressed, as to render it advisable to postpone the erection of further works until a more favorable period. In this depression at the time referred to, iron and other metals participated with zinc; but with this great advantage in favor of iron, that it had a protection of 30 per cent. in the foreign duty, while zinc-metal paid no more than five per cent.; and this distinction, unfortunately for the interest of the latter, is still kept up. There being inexhaustible supplies of zinc ores, not only in New Jersey, but also in Pennsylvania, Illinois, Wisconsin, Tennessee, and doubtless in other portions of the Union, it is difficult to conceive why a policy so hostile to the introduction of a new branch of enterprise and industry should be persevered in.

While a bar was thus put to its progress (however thoughtless or inadvertent this policy may have been on

the part of the government) a knowledge that the *white oxide of zinc* had been successfully introduced as a pigment into France, and that it had received the decided encouragement and patronage of the French government, was first communicated to this country in the years 1849–50, and at once attracted the attention of the parties who had thus far been experimenting upon the production of metallic zinc.

A course of experiments was resolved upon, the management of which devolved upon the same party, by whom the most economical methods of manufacture were perseveringly tried, and under whose auspices the crowning discovery of the present method of "catching" the volatile vapors of the white oxide, was made in the summer of 1850. By this method these vapors of zinc may be altogether condensed and saved, although driven by the impetus of a strong blast; and its importance will be perceived in a succeeding statement, in its application to the manufacture of iron from the Franklinite ore, which, besides the iron, contains a large portion of zinc. The reduction of this ore into iron and zinc is now understood in all its parts, and it is the intention of the Company to erect works for its conversion with all possible despatch and economy, and which, it is believed, cannot fail to give ample and satisfactory returns to those who may now be, or shall hereafter become interested in it.

In the conversion of the Franklinite ore into pig-iron, the proportion of zinc combined with it, and which may be altogether saved by the process of collection or of "catching," already referred to, will at the present prices *at least go far towards defraying the entire cost of manufacture, both of the iron and of the zinc;* and from the almost unlimited demand for zinc-paint, great steadiness in its price hereafter may reasonably be counted upon.

Of the quality of the iron made from this ore, too much cannot be spoken; for its great purity, fibre, and toughness, although made in an anthracite blast furnace, renders it superior to the best refined charcoal American iron, and entitles it to rank with the best Danemora and other Swedish, Russian, and Norway irons. From its admirable properties it has up to the present time readily commanded $50 per ton, the price hereafter named in the estimate, and at which contracts could now be made.

With a view to the erection of the proposed works on the most advantageous site, the directors have purchased 20 acres of land at Philipsburg, on the Delaware River, nearly opposite to Easton and to the mouth of the Lehigh Canal, which situation, by means of the canal and of the Lehigh Valley Railroad, now far advanced towards its completion, will ensure ample supplies of coal at cheap rates and at all seasons. This road will cross the Dela-

ware by the bridge now erecting at Easton, and by a short transit of one-third of a mile upon the Trenton and Belvidere Railroad, which passes through the Company's property, will deliver coal upon the spot. The Morris Canal, which enters the Delaware near this point, also passes through the Company's property, and by it coal from the Lehigh and ore from the Company's mines will be delivered with great economy. Easy communication with New York and Philadelphia will also be obtained both by canal and railroad.

It might be deemed invidious to institute a comparison between the advantages possessed by this and other companies in the manufacture of iron, but justice to our stockholders requires that this matter should be put in a clear light.

We will therefore give the following estimates (taken from published data) of the cost of making pig-iron in the great Lehigh Valley region of Pennsylvania, and also upon the banks of the Hudson River, at or near the town of that name, and the profits upon the same, and then contrast them with the cost and profits upon an equal amount of iron made at Philipsburg, from the Franklinite ore.

Estimate of cost of iron made in the valley of the Lehigh.

2 tons of coal at $3.00 per ton	$6.00
2 " hematite ore at $2.12½ per ton	4.25
⅓ " magnetic ore at $3.75 "	1.25
¾ " limestone at $1.00 "	75
Labor and incidentals	4.00
Transportation to New York	2.62
Commission and other expenses, 5 per cent	94
	$19.81

Estimate of cost of iron made upon the Hudson River.

2 tons coal, at $4.25	$8.50
2 " hematite ore, $2.35	4.70
⅓ " magnetic ore, $3.00	1.00
¾ " limestone	52
Labor and incidentals	4.00
Freight to New York	50
Commission and other expenses	96
	$20.18

Estimate of cost and profit upon one ton pig-iron from Franklinite ore, at Philipsburg, N. J., deducting value of the oxides of zinc, incidentally obtained in its manufacture.

3 tons dust and pea coal, for extracting zinc, at $1.40		$4.20
2½ " lump coal, for furnace and steam engine, $4.00		10.00
3 " ore, mined and carted to Woodsport—9 miles—at $3.00		9.00
3 " freight and toll on Morris Canal, $1.50		4.50
3 " labor, handling, crushing, &c., 50 cts.		1.50
1 " limestone		1.00
Labor at zinc furnaces and in collecting-room		10.00
" blast furnaces and incidental		4.00
Carried over		$44.20

Brought over		$44.20
Proceeds.		
1 ton pig-iron, sells for	$50.00	
½ " zinc, white, sells for $120.00 per ton.	60.00	
¼ " " yellow, " 90.00 " .	22.50	
	$132.50	
Deduct for freight and other expenses and contingencies, say 25 per cent	33.13	
		$99.37
Profit upon Franklinite iron and zinc		$55.17

Now, supposing that a business of 2500 tons only of iron be accomplished by each concern per annum, and that the pig-iron from the Lehigh Valley, and from the works on the Hudson River, bring the somewhat unusual price of $35 per ton, it would leave a net profit for each of these two concerns of about $15 per ton, and the relative advantages between them and the Franklinite iron would stand about as follows—viz :

2500 tons from the Lehigh Valley or from the Hudson River, at $15.00 profit per ton	$37,500
2500 tons of Franklinite iron, at $55.17 profit per ton	137.925

It might be objected that the extraction of the zinc would involve the employment of a greater amount of labor and of capital ; but an ample allowance has been made for the former, and while the zinc furnaces are of a

simple and inexpensive kind, they are not costly, nor liable to get out of order.

A highly important feature of the operation also is, that while extracting the zinc, the iron portion of the ore becomes so far advanced towards its final reduction, as greatly to accelerate its after conversion into pig-metal in the blast furnace, thereby saving the expense of a large portion of the blast, coal, and labor; ensuring a much more rapid reduction, and consequently requiring a blast furnace of far less size, and of a less expensive character, to convert this prepared stock into pig-metal.

It is estimated that with economy $70,000 will be sufficient to erect the works now proposed, and leave a considerable surplus for contingencies, and that if this amount be promptly subscribed, the works may be put into operation during the present year, thereby ensuring early dividends. A considerable amount has already been subscribed, and further information may be obtained, and subscriptions received, by the President of the Company, S. T. Jones, No. 24 William St., or by the Secretary, Chas. J. Gilbert, Trinity Buildings.

New York, August 6, 1855.

The following are a few among many other reports and certificates, all testifying in the strongest manner as to the extraordinary quality of the iron made from the Franklinite ore, and also as to the valuable properties of zinc-paints.

Worcester, Feb. 10, 1853.

Cyrus Alger, Esq.—

Dear Sir: We forward you with this a piece of No. 32 wire, manufactured from the Franklinite iron. This iron is said to be puddled iron, which is almost incredible. That such a process of manufacture can produce such an iron is wonderful. Very few of the best charcoal refined Norwegian or Swedish irons are susceptible of being reduced so fine, without weakening the fibre so much as to render it worthless. But notwithstanding the rigid test to which this has been submitted, it still retains its tenacity and strength much beyond most of the best American charcoal irons which we have ever used; and, during our experience of over twenty years, we have had numerous samples of the best of American iron, prepared with special care, sent us for trial. This iron is not only very tough, but uniform, and works beautifully. The coil shows the lustre of the iron—nothing can exceed it. The ore must certainly be of an extraordinary character.

Yours, very truly,

(Signed) J. WASHBURN & CO.

New York, Feb. 12, 1853.

Dear Sir—

We have used some of the iron (Franklinite) we had from you, and were pleased with the manner in which it worked, which proved the iron to be of the best quality; and we would like you to furnish us in future.

Respectfully, yours, &c.,

J. A. & J. D. SECOR.

Novelty Iron Works,
New York, Feb. 22, 1853.

We have tried some Franklinite iron left with us, and find it very superior in strength, toughness, malleability, and other desirable qualities. We can say that we have never used or tried a better iron.

STILLMAN, ALLEN & CO.

République Française.

ADMINISTRATION DE LA MARINE.

FORGES NATIONALES DE LA CHASSAUDE.

Essay of a bar of iron, from a new ore, THE FRANKLINITE, *from New Jersey, United States.*

The bar, obtained by direct treatment of the ore in a catalan forge, is 25 millimetres by 24·5 millimetres square, and presents a section in square millimetres of	612·50 *m.*
Charge under which the bar began to stretch	15,000 *k.*
Elastic force, per millimetre.....	24·5 *k.*
Charge under which the bar broke	25,000 *k.*
Absolute tenacity, per millimetre	40·8 *k.*
Elongation of the bar at the moment of fracture, per millimetre.....	5 *m.*

Aspect of the fracture—all nerve. The bar was imperfectly welded, and contained fissures which diminished the real surface exposed to traction: in consequence, the *absolute tenacity*, had the bar been sound, would have been greater. At the moment of rupture, but little heat was disengaged.

Observations.—The tensions of the hydraulic press of the National Forges, are given by means of an excellent apparatus, which indicates the results with the greatest precision. An immense number of experiments have been made with this press, not only upon all the irons of France, but upon the best irons of England, Sweden, Spain, and

Siberia: never, until the present essay, has any bar been tried the *absolute tenacity* of which surpassed 40· killogrammes per millimetre.

(Signed) TH. BORNET,

Chef des Travaux aux Forges Nationales de la Chassaude.

Guerigny, 12th July, 1850.

P. S.—The Franklinite iron tried at the Forges, works and welds to perfection.

(Signed) T. BORNET.

Copy of analysis of the yellow oxide of zinc obtained from the blast furnace, at Franklin, by Doctor Charles T. Jackson, of Boston.

"I have completed the analysis of the sample of Canary oxide of zinc, and find it to consist of

Oxide of zinc	98·82
" " manganese	·88
Per-oxide of iron	·30
	100

"It is obvious that the oxides of iron and manganese must have been carried up from the furnace by the vaporized zinc, for the combination is quite uniform throughout the mass of the oxide. This result is one arising from the high temperature at which it is necessary to work the smelting furnace. The oxide of manganese renders the yellow zinc-paint a rapid dryer, by furnishing oxygen to the oil."

U. S. Navy Yard, Gosport,
December 31, 1853.

Sir—

In April last I deposited in the southern branch of the Elizabeth river, opposite this yard, a great number of blocks of wood, on all of which I had painted three coats of all kinds of paint extant. Two or three kinds, where there were three coats, kept the sea-worm (the

Teredo of naturalists) from being brought into life or being generated under the surface of the wood. In more than twenty-five experiments last summer with white zinc-paint, in no ease has the marine-worm been generated, nor has there been the smallest sign of a eoral deposit where the wood was prepared with three coats of white zinc-paint. On *all* other paints on *metallic plates*, wood, bark, glass, &c., coral deposits, sueh as the oyster and eommon barnaele, have grown during the summer to a eonsiderable size.

I prepared two sheets of iron about eighteen inehes square, and on two sides I put three eoats of white zinc-paint; on the two opposite I put three eoats of red lead. These two preparations remained in the river the whole summer. *Mark this! the white zinc is as clear of any sign of a barnacle as when first prepared.* On the side of the red lead are many barnaeles.

I have a large number of pieees of wood, painted with all kinds of paints:—*the white zinc is superior to all.* These pieees are in open air, and have been upwards of two years exposed. The above is all the knowledge I have to impart at present: of itself it is important to the world, and very advantageous to the zine eompany.

(Signed) JAMES JARVIS,
Inspector.